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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,978	01/23/2004	Plamen Denchev	205502-9037	9303
1131 7590 03/05/2007 MICHAEL BEST & FRIEDRICH LLP Two Prudential Plaza 180 North Stetson Avenue, Suite 2000 CHICAGO, IL 60601			EXAMINER HWU, JUNE	
			ART UNIT 1661	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/05/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/764,978	<b>Applicant(s)</b> DENCHEV ET AL.	
	<b>Examiner</b> June Hwu	<b>Art Unit</b> 1661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-14,16-23,26-34 and 36-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-14, 16-23, 26-34 and 36-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The amendment to the claims filed February 6, 2007 is acknowledged.

The finality of the previous Action filed on November 6, 2006 is withdrawn in favor of this Office Action.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 18, 20, 21, 27, 38, 41 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Dependent claims are included in all rejections.

Claims 5, 20, 27 and 41 are indefinite in their recitation of "less than about", since this is a relative term. It is unclear how much sugar is in the nutrient medium.

Claims 18 and 38 are indefinite in their recitation of "less than about", since this is a relative term. It is unclear how much sugar is in the nutrient medium.

Claims 21 and 42 are indefinite in their recitation of "less than about", since this is a relative term. It is unclear how much sugar is in the nutrient medium.

Applicants urge that by amending the claims by adding a decimal point and a zero after the whole number would clarify the scope of the invention.

This argument is not found persuasive because there is no difference between a number with a decimal point followed by a zero and a number without the decimal point. The specification does not describe the specific range of galactose containing sugar.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5-10, 12-14, 18-23, 27-30, 32-34, 38-41, and 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pullman et al (U.S. Patent No. 6,492,174) in view of Handley et al (U.S. Patent No. 5,491,090).

The claims are drawn to a method of reproducing coniferous plants selected from *Pinus taeda*, *Pinus radiata*, and *Pseudotsuga menziesii* somatic embryos comprising growing an explant in induction, maintenance, or prematuration media, wherein the nutrient medium is gelled or liquid comprising more than about 1.0% to less than about 6.0% of galactose-containing sugar and an additional sugar, the prematuration medium contains abscisic acid (ABA) and less auxin and cytokinin than the maintenance medium, and developing the explant to obtain a cotyledon stage embryo suitable for germination.

Pullman et al teach a method of initiating embryogenic cultures of *Pinus taeda* (col. 7, line 41), *Picea abies* (Norway spruce) (Example 1), *Pseudotsuga menziesii* (Douglas fir) (Example 2), and *Pinus radiata* (col. 7, line 44) (Example 3), wherein the explant is induce in liquid media containing between 5 and 70 g/l of maltose (for example 1.5% see Table 47), glucose, fructose, sucrose (for example 1% - 1.5% see Table 3 and 5), galactose, or

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combination thereof (col. 9, lines 54-58). The nutrient medium further comprises auxin and cytokinin (Table 1).

Pullman et al do not teach a method of reproducing coniferous somatic embryos comprising culturing the explant in the maintenance and prematuration media, wherein the prematuration medium contains less auxin and less cytokinin than the maintenance medium. Moreover, the prematuration medium further comprises ABA and that the embryogenic culture contains early stage embryos suitable for germination.

Handley et al teach a method of regenerating *Pinus taeda* in liquid medium, wherein the initiation (induction) (col. 5, lines 62-64) and maintenance (col. 6, lines 7-9) media contain sugar selected from the group consisting of glucose, maltose (6% see Table 2), sucrose (3% see Table 2), melezitose, and combination thereof and the development (prematuration) (col. 6, lines 22-23) medium contains sugar selected from the group consisting of glucose, maltose, sucrose, and combination thereof. The maintenance medium also contains 0.1 to 100 mg/l of auxin and 0.05 to 10 mg/l of cytokinin (col. 6, lines 5-6 and Table II). The prematuration medium further comprises between 5 to 250 mg/l of ABA (col. 6, lines 17-18) and no auxin and cytokinin (Table II). The prematuration medium contains ABA and less auxin and cytokinin than the maintenance medium. At weeks 6, 9 and 12, the embryos were suitable for germination (col. 17, lines 66-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to reproduce coniferous somatic embryos wherein the nutrient medium contains a galactose-containing sugar and additional sugar as taught by Pullman et al and to modify the prematuration medium containing ABA and no auxin and cytokinin when compared to the maintenance medium containing auxin and cytokinin as taught by Handley. One of ordinary skill in the art would have been motivated to do so given that ABA is a growth regulator and auxin

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and cytokinin is not needed in the prematuration stage. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Claims 4 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pullman et al in view of Handley et al as applied to claims 1, 5-10, 12-14, 18-23, 27-30, 32-34, 38-41, and 44-45 above, and further in view of Schuller et al (Plant Cell Reports (1993) 12:199-202).

The claims are drawn to a method of reproducing coniferous somatic embryos comprising growing an explant in induction, maintenance, or prematuration media, wherein the nutrient medium contains a galactose-containing sugar which is lactose and an additional sugar, and developing the explant to obtain a cotyledon stage embryo suitable for germination.

The teachings of Pullman et al in view of Handley et al are discussed above.

Pullman et al and Handley et al do not teach lactose as the galactose-containing sugar.

Schuller et al teaches that lactose, a disaccharide, was a superior carbon source in the maturation stage of *Abies alba* (abstract and page 202, col. 2). Further proliferation of somatic embryos occurred when abscisic acid was supplemented to the media (page 200, col. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Pullman et al in view of Handley et al by using lactose as the primary carbon source because Schuller states that lactose was a superior carbohydrate and produced more mature embryo of European silver fir (abstract). One of ordinary skill in the art would have been motivated to do so given that lactose promoted more torpedo growth of somatic embryos. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

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Claims 16, 17, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pullman et al in view of Handley et al as applied to claims 1, 5-10, 12-14, 18-23, 27-30, 32-34, 38-41, and 44-45 above, and further in view Coke (U.S. Patent No. 5,534,433).

The claims are drawn to a method of reproducing coniferous somatic embryos comprising growing an explant in induction, maintenance, or prematuration media, wherein the nutrient medium contains a galactose-containing sugar and an additional sugar consisting of sucrose, and developing the explant to obtain a cotyledon stage embryo suitable for germination.

The teachings of Pullman et al in view of Handley et al are discussed above.

Pullman et al and Handley et al do not teach that the additional sugar is sucrose.

Coke teaches that the nutrient medium for *Pinus taeda* (Loblolly pine) embryo consisted of with the addition 30 g/l of sucrose (col. 6, lines 59-61). The embryos further developed into the cotyledon stage (col. 7, lines 36-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Pullman et al in view of Handley et al wherein the additional sugar is sucrose as taught by Coke. One of ordinary skill in the art would have been motivated to do so given that sucrose encourage the growth of somatic embryos. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

### **Conclusion**

No claims are allowed.

### **Correspondence**

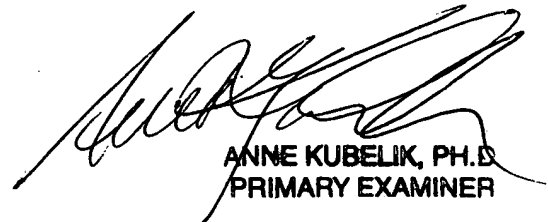
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to June Hwu whose telephone number is (571) 272-0977. The Examiner can normally be reached Monday through Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached on (571) 272-0975. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JH



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PRIMARY EXAMINER